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United States Department of the Interior
Bureau of Biological Survey

Wildlife Leaflet BS-141

Washington, D. C. * August 1939

PROTECTING BLUEBERRIES FROM DAMAGE BY HERRING GULLS

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INTRODUCTION

For a number of years complaints have been received from blueberry growers in Maine of the destruction of ripe berries by herring gulls. Investigations show that this damage does occur and that much of the loss can be averted without great expense.

BLUEBERRY CULTURE

In Washington and Hancock Counties, Maine, abundant native growths of blueberries occur in most woodlands, fields, and barrnes. In this area there is produced an average annual crop of 160,000 bushels, or 90 percent of the world's output that is canned. After these lands are cleared and burned for several years, a dense stand of berries results; thereafter culture consists of several simple practices:

1. The land is burned over a 3-year period, usually one-third of the acreage each year. This stimulates new growth and results in a bumper crop the following year.

1/ Prepared while the author was employed in the Food Habits Section.

2. The plants are dusted with calcium arsenate twice each year to control the blueberry maggot.

3. Some fields are weeded, but many are allowed to grow up in weeds.

Most blueberry fields are situated inland and are free from gull depredations, but others, adjoining tidewater, may be considerably damaged.

DAILY HABITS OF GULLS

Herring gulls leave their roosting places about daylight and begin seeking food on the water and on exposed beaches. The birds usually follow fishing boats to obtain refuse fish, and when a new boat leaves the shore, they begin to collect from all directions. If the tide is falling when the day's fishing is over, the gulls resort to feeding on exposed flats. If the tide is rising, hundreds collect on sandy beaches or rocks and ledges, usually at the mouth of a river or bay.

When the tide begins to fall, numerous gulls collect near the headwaters, where they feed on the animals left stranded on the exposed flats. This food consists largely of sea urchins, starfishes, mollusks, prawns, refuse fishes, and carrion of almost any origin. Because of their abundance, the birds clean up this food almost as quickly as it becomes available; then some of them visit the blueberry fields. The majority, however, remain on the mud flats.

As the tide rises, a steady stream of gulls driven from the flats heads toward the mouth of the bay or river. By dark they have returned to their roosts on the numerous islands and offshore ledges.

GULLS IN BLUEBERRY FIELDS

Probably because of insufficient food on the tide flats, some gulls desert the waters and beaches to search for food inland. Many of those in Maine feed on ripe blueberries. At other points along the Atlantic coast they follow the plow and devour exposed Japanese beetle and other larvae. Some visit parks and school playgrounds, where they finish up the discarded remains of lunches.

Laboratory analysis of stomach and intestinal contents, field examination of regurgitations and droppings, and general observation in the Maine fields show that the berry-eating habit is restricted to a small minority of the total gull population. Nevertheless, this minority can inflict severe damage in fields near tidewater. Losses of entire crops have been reported in such situations.

Contrary to popular belief, the chief damage does not occur early in the morning or late in the evening, but from 8 a.m. to 6 p.m. Damage may take place at any stage of the tide, but attacks are at a minimum while new feeding grounds are being uncovered as the water recedes.

As many as 100 or more gulls may be present in a field at one time. They are very restless and continually make short flights. As the ripe berries are eaten the bushes are trampled, and many berries are knocked from the bushes by the flapping wings of the birds. Feeding gulls may remain from only a few minutes to more than an hour.

METHODS OF CROP PROTECTION

Cultural Practices

Few fields are free from sweetfern, alder, birch, bunchberry, spiraea, or other weeds. Experiments by the University of Maine 2/ show that the most effective control of sweetfern results from cutting in July or early August. Since this period coincides with that of heaviest gull damage, persons employed to cut undesirable plants at this time also serve to scare the gulls from fields. The fact that tall weeds harbor the adults of the blueberry maggot also tends to make this method of protection most desirable.

Pickers crating fruit for city markets may also serve to frighten marauding gulls. Since this operation can be carried on several weeks earlier than picking for canning, and since crated berries bring premium prices, 2 or 3 weeks preliminary protection may be had at little additional cost.

All methods can be made more effective and economical by using controlled burning in such way that the blueberry tracts will form compact areas. As an example, a field of 80 acres might be eight times as long as wide and thus add greatly to the difficulty of protection. If it were square, protection would be less of a problem.

Frightening Devices

The automatic flash gun provides effective protection for an area extending about one-quarter mile in all directions. The apparatus operates by water dripping on carbide, thereby forming an explosive gas, which is ignited by a pilot burner. The frequency of explosions is regulated by the flow of the water. The device can be supported by lasting three poles to form a tripod. Each gun should be visited at least three times daily--once before 8 a.m., to replenish the carbide and water and set the device for operation; the second visit later, to insure that operation is satisfactory; and the third at about 6 p.m., to close the water valve and extinguish the pilot burner. Flash guns usually sell for about $35, 3/ and since 1 pound of carbide is sufficient for about 12 hours' operation, the cost of using them is not great.

2/ Blueberry Dust Service, mimeographed paper by the Extension Service, University of Maine.

3/ A list of dealers in pyrotechnic supplies and other bird-frightening devices (Bi-1406) can be had from the Bureau of Biological Survey on request.

Flat squares of tin suspended by cotton twine from 4-foot poles pushed into the ground at a 45-degree angle have a marked scaring effect. This is because they constantly rotate in a slight breeze, reflect flickering beams of light from their surfaces, and produce a rattling noise when they strike the supporting pole. These squares which can be made from discarded tin cans, should ordinarily be placed no farther than 50 feet apart, but they may be at greater intervals when the berry crop is thin.

White cloth streamers tied to poles, or to cords supported by poles, are used by some growers, but the tendency is to use too few streamers. The flat tins are superior to the streamers because of the additional frightening effects connected with the light beams and the rattling noise. By substituting for the cloth streamers heavily oiled strips of paper such as is used in butcher shops, about 2-1/2 by 24 inches in size, the method might be improved. This method is described in detail by Johnson A. Neff in a mimeographed leaflet of the Bureau of Biological Survey (BS-64), entitled "Protecting Crops from Damage by Horned Larks in California."

Scarecrows have been used by growers with little success. A greater measure of protection can be obtained by erecting more realistic figures and moving them to new sites every few days.

Shooting

The use of the shotgun for frightening gulls has little value, since the birds have been observed to alight again at the same spot within 30 minutes after being fired upon. Patrolling with firearms is expensive, but if some gulls are killed and their bodies displayed prominently in the field, a definite decrease takes place in the number of those feeding. Dead birds may be suspended from slanting poles at a height of 4 to 5 feet from the ground or placed on the ground at conspicuous spots in the field, belly down and wings spread. One dead bird is adequate for every 2 acres. Destruction of the birds, however, should not be attempted unless frightening devices or other less drastic control measures prove ineffective. Federal and State permits are necessary for killing gulls.

CONCLUSION

Damage to blueberries by herring gulls can be reduced, but the farmer must persist in any method used to accomplish the purpose. Frightening devices and shooting seem to be less effective than modifications of present cultural practices. These offer the most satisfactory and permanent means of protecting this valuable crop in Maine.

NOTE: The Wildlife Leaflets, beginning with No. 141, are a continuation in the Department of the Interior of the series of Wildlife Research and Management Leaflets issued by the Bureau of Biological Survey under the Department of Agriculture from January 1935 to June 1939.